



US 20210284963A1

(19) **United States**(12) **Patent Application Publication**
DALOD et al.(10) **Pub. No.: US 2021/0284963 A1**(43) **Pub. Date: Sep. 16, 2021**(54) **METHODS OF OBTAINING A MIXED
POPULATION OF HUMAN XCR1+ AND
PLASMACYTOID DENDRITIC CELLS FROM
HEMATOPOIETIC STEM CELLS**(71) Applicants: **INSERM (INSTITUT NATIONAL
DE LA SANTÉ ET DE LA
RECHERCHE MÉDICALE)**, Paris
(FR); **CENTRE NATIONAL DE LA
RECHERCHE SCIENTIFIQUE
(CNRS)**, Paris (FR); **UNIVERSITÉ
D'AIX MARSEILLE**, Marseille Cedex
07 (FR)(72) Inventors: **Marc DALOD**, Cedex 9 Marseille
(FR); **Sreekumar BALAN**, Cedex 9
Marseille (FR); **Catharina
ARNOLD-SCHRAUF**, Cedex 9
Marseille (FR)(21) Appl. No.: **16/330,382**(22) PCT Filed: **Sep. 4, 2017**(86) PCT No.: **PCT/EP2017/072132**

§ 371 (c)(1),

(2) Date: **Mar. 5, 2019**(30) **Foreign Application Priority Data**

Sep. 5, 2016 (EP) 16306112.0

Publication Classification(51) **Int. Cl.****C12N 5/0784** (2006.01)**A61K 35/15** (2006.01)(52) **U.S. Cl.**CPC **C12N 5/0639** (2013.01); **A61K 35/15**
(2013.01); **C12N 2501/42** (2013.01); **C12N**
2502/1358 (2013.01); **C12N 2501/26**
(2013.01); **C12N 2501/2307** (2013.01); **C12N**
2501/145 (2013.01); **C12N 2506/11** (2013.01)

(57)

ABSTRACT

The present invention relates to methods of obtaining a mixed population of human XCR1+ and plasmacytoid dendritic cells from hematopoietic stem cells. Human DC subsets are rare in blood and other tissues, difficult and expensive to isolate, and fragile. Hence, to advance on deciphering their functions and their molecular regulation, there is a strong need for relevant *in vitro* models. The inventors developed a new protocol allowing simultaneous generation of the various human DC subsets *in vitro* from hematopoietic progenitors. In particular, the present invention relates to a method of obtaining a mixed population of human XCR1+ and plasmacytoid dendritic cells said method comprising the steps of i) culturing a population of hematopoietic stem cells (HSC) or committed hematopoietic precursor cells in the presence of a Notch ligand, and thereafter, ii) isolating human XCR1+ and plasmacytoid dendritic cells from the culture.

A